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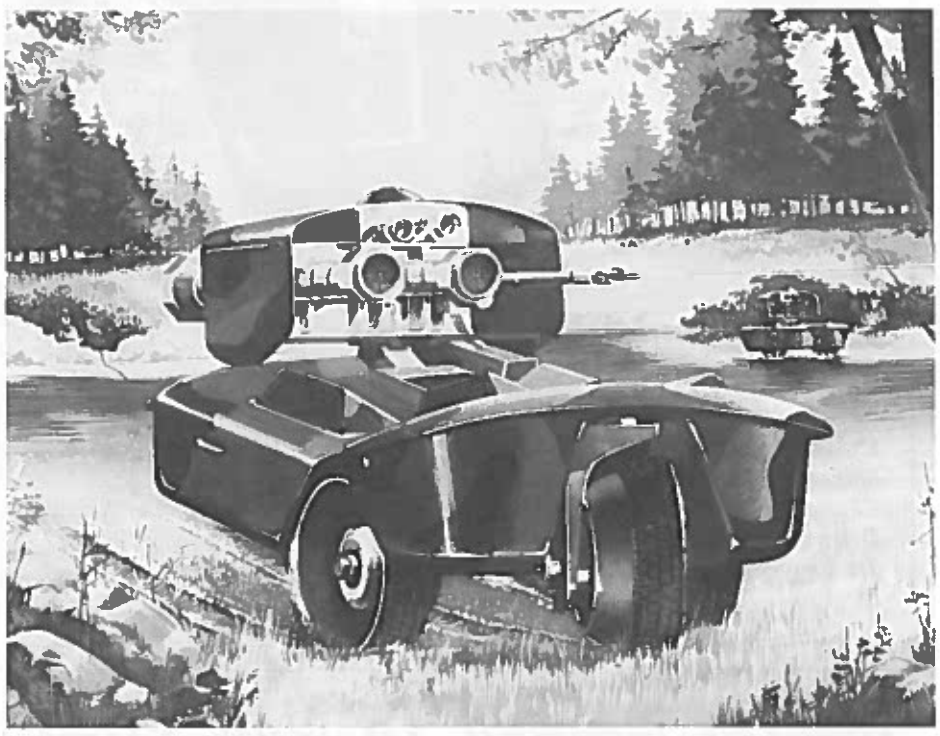

Giving The Soldier Reach. *Grumman's Teleoperated Mobile Antiarmor Platform would let the infantryman throw a powerful punch at enemy armor, from a safe distance.*

Robotic Vehicle Gains Momentum

The Electronics Systems Division won a $4 million contract to build a prototype robotic system called the Teleoperated Mobile Antiarmor Platform (TMAP). The contract was awarded by the Sandia National Laboratories in Albuquerque, New Mexico, which will manage the program for the United States Army.

TMAP is a four-wheeled robotic vehicle that will carry antiarmor weapons, such as rockets. An infantryman will guide it from a remote location through a fiber-optic link. The vehicle's body, with single wheels in front and back and a twin-wheeled center axle, is smaller than a golf cart and will be made of composites.

Grumman will deliver TMAP to Sandia for field tests and evaluation in the fall of 1988. The 14-month contract has options for additional vehicles, plus support services to Sandia during testing.

"Grumman's success is due to years of work on the Robotic Ranger, the vehicle on which TMAP is based," says Jerry Kirsch, director of Robotic Vehicles, Guided Weapon System Products.

(Continued on page 2)

Grumman To Build Radar For Chinese F-8s

On August 5, Grumman won a $245 million contract to build weapons radar systems for the People's Republic of China's F-8 fighters. It is the biggest defense contract with China so far awarded to an American company.

"Grumman is pleased to be able to play a part in improving relations between the United States and the People's Republic of China," said Grumman Chairman Jack Bierwirth.

"The F-8 project is a logical follow-up to our experience in developing the X-29 technology demonstrator aircraft," said Grumman President John O'Brien. "In that program we combined parts of existing aircraft with modern technologies to create a flying machine with unprecedented capabilities."

Foreign military sales are conducted on a government-to-government basis, so Grumman's contract is with the U.S. Air Force.

One segment of the pact is a $145 million job for systems definition and full-scale development of a fire control radar system which will be used to lock on to targets. This work will run through 1992. The contract is with the Aeronautical Systems Division, Wright-Patterson Air Force Base, Ohio.

The other segment of the contract, worth $100 million, is with the San Antonio Air Logistics Center at Kelly Air Force Base in Texas. This part deals with the support services, such as operation support, common support equipment and spare parts. This job will be completed in January 1995.■

Grumman To List On Tokyo Exchange

Grumman will apply for the listing of its common stock on the Tokyo Stock Exchange. Daiwa Securities Company, Ltd., Tokyo, will sponsor the listing. Daiwa will purchase shares, principally on the New York Stock Exchange, and establish a trading market for the stock in Japan. Grumman shares are expected to begin trading in Tokyo before year-end.

"Grumman's international business has grown considerably over the past decade," says Grumman Chairman Jack Bierwirth. "Much of this growth has been in the Pacific basin and I believe Japan and her neighbors are our largest potential market. This listing will not only provide us with access to the Japanese financial markets, but will demonstrate our commitment."

Rarin' To Go. *Vice Adm. Richard Dunleavy was the keynote speaker at the roll-out ceremonies for the first A-6F on August 3 at Calverton, Long Island. See article on page 3.*

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Grumman Releases Second Quarter Results

Second Quarter Sales, Income Decline

On August 4, Grumman Corporation reported net income for the second quarter ended June 30 of $11.6 million or 32 cents a share. The year-ago second quarter net was $17.6 million or 50 cents a share. Earnings were down 18 percent after exclusion of a special gain of $3.4 million or 11 cents a share from the sale of a subsidiary in the 1986 second quarter.

Quarterly sales declined eight percent to $803.6 million from $869.4 million. This was due to a sharp decline in revenues on the F-14 aircraft program for the U.S. Navy. In the 1986 quarter, six F-14s were delivered. No F-14s were scheduled for delivery in the second and third quarters of 1987 as the production line is switched over to a new model.

For the first six months of 1987, net income was $32.6 million or 92 cents a share on sales of $1.66 billion. Comparable 1986 net income including the one-time gain was $38 million or $1.14 a share on sales of $1.7 billion.

For the second quarter, interest expense increased $2 million but was more than offset by a $7.9 million decline in research and development expenditures.

In the quarter, sales in the aerospace segment were down over $100 million due to the lack of F-14 deliveries, and sales in the information and other services segment declined over $10 million principally from the 1986 sale of the ISI subsidiary of the Data Systems Division. These declines were partly offset by growth in the electronics systems and special purpose vehicles segments. The Air Force/Army Joint STARS program and automated test equipment brought nearly $50 million in revenue growth to the electronics segment. Special purpose vehicles segment revenues grew nearly $8 million mainly from the new delivery vehicle for the U.S. Postal Service.

As first reported in August of last year, certain technical problems have been identified on the F-14D and A-6F programs which could significantly affect program costs and schedules, as well as the performance of the aircraft. These problems continue to be the subject of intense discussions between the Navy and Grumman. Pending resolution of these matters, the company is unable to determine if or to what extent there will be any attendant loss.

"Our decline in second quarter sales and earnings was expected, and there will be an even further decline in the third quarter before an anticipated recovery in the fourth quarter," said Chairman Jack Bierwirth. "As we have said before, Grumman's 1987 earnings will be down from last year's $2.32 a share."■

Electronically Speaking

If circuitry is your thing, the Electronics Systems Division has something for you. It's sponsoring a gallium arsenide workshop on Thursday, September 3, 9 a.m.—noon. The workshop will be held in the headquarters auditorium in Bethpage.

To reserve a seat call Suzanne Wenz, Ext. (111) 54365.■

F-14A+ Flies 100 FOD-free Missions

CALVERTON, Long Island — The F-14A+ Super Tomcat recently completed its 100th FOD-free flight with its new General Electric F110-GE-400 engines.

FOD refers to foreign object debris. FOD can be anything inadvertently left behind during the production process, such as a tool, a bolt, or a stray piece of metal.

Before and after each test flight, plane captains and inspectors scrutinize the aircraft inside and out. They also check for FOD after any maintenance or repairs are made inside the aircraft. The safety of the pilot depends on their close inspection for FOD.

"This is quite an achievement for the people at Calverton working on the aircraft," says Joe Mallins, FOD manager at Calverton. "One hundred flights is quite a lot for a development program. Usually, the same aircraft doesn't stay here that long. This is evidence of their attention to quality."

The Calverton crash crew also must keep the runway clear of FOD. "You'd be surprised what they find there: golf balls, nuts, bolts, you name it," says Mallins.

A plaque commemorating the 100th flight will be presented to the Flight Development Department. The flight, which occurred on July 17, was actually the airframe's 166th FOD-free flight since it was built in the early 1970s. The 66 previous flights were for other engine test programs.

The F-14A+ is a precursor to the next generation F-14D, minus the latter's avionics. In April, a second F-14A+ joined the flight test program, F-14 No. 503.

Eye To Eye. *Admiral William Crowe Jr., the nation's highest ranking military officer as chairman of the Joint Chiefs of Staff, confers with Grumman Chairman Jack Bierwirth. The June 17 visit was his first to a major Strategic Defense Initiative contractor. He reviewed work on the Boost Surveillance Tracking System program. On July 30, the vice chairman of the Joint Chiefs, Air Force General Robert Herres, also came to Bethpage to review the BSTS program. (Photo by Bob Settles)*

Several Named To New Posts

Several major appointments were announced at Grumman recently.

As previously announced, Fred Haise is the president of the Grumman Space Station Program Support Division. Dick Kline was named vice president and deputy director of this new division, which is headquartered in Reston, Virginia.

Wiley Williams was appointed to succeed Haise as president of the

Technical Services Division in Titusville, Florida. Williams had been vice president for the Shuttle Processing Program in Technical Services. Williams rejoined Grumman in 1985 after a long stint with the National Aeronautics and Space Administration. When he retired from NASA, he was acting director of Cargo Management and director of Shuttle Cargo Operations at the Kennedy Space Center. He had served as Grumman's director of Lunar Module Operations at Kennedy from 1967 to 1972.

In the Allied Division. F. Clinton "Kip" Towl was appointed vice president and assistant to the president of Allied. Towl had been president of Allied's LLV Division in Montgomery, Pennsylvania, which is producing the Long Life Vehicle delivery vans for the U.S. Postal Service. Towl joined Grumman in 1967. He was transferred to Grumman Allied in 1972 and was elected vice president of Grumman Olson Administration and Grumman Olson of Canada in 1978.

Len Rothenberg was appointed president of the LLV Division. Rothenberg had been president of Grumman Emergency Products, an Allied unit that manufactures fire fighting and other emergency vehicles, since 1985.

Rothenberg joined Grumman as a member of the Lunar Module team in 1963. Before taking over Emergency Products, he was vice president and general manager of the Allied Energy Systems unit.

Also in the LLV Division, Stu Lawrence was appointed to the new post of vice president-Quality Control.

Wells Darling was appointed to succeed Rothenberg as president of Emergency Products, which is headquartered in Roanoke, Virginia. Darling had been senior vice president-Marine Division of Allied. He joined Grumman Allied in 1964 as assistant to the senior vice president. He was elected vice president in 1972, responsible for recreational products and special vehicles.■

Robotic Vehicle

(Continued from page 1)

"In size and mobility, they are much the same, although endurance and power levels have been increased," he says. The control unit has been downsized from suitcase-size to fit in a backpack. In the fiber-optic system we've taken a reasonably evolutionary step to make it better, but there are many, many similarities.

"The experience we had testing the Robotic Ranger was invaluable," says Kirsch. In fact, he explains, Army tests of the Ranger at Fort Benning, Georgia, in June of 1986, produced some of the requirements that went into the TMAP request for proposal.

The current contract from Sandia Labs puts Grumman's TMAP design in a "fly-off" against a design by a team led by Martin Marietta. General Dynamics had also bid on the proposal, but lost.■

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New Intruder Takes A Bow At Calverton

CALVERTON, N.Y., August 3, 1987 — A summer storm shut the airfield and delayed the arrival of many officials, but it didn't drown the festivities marking the debut of the first Grumman A-6F Intruder here today.

Attending the A-6F prototype rollout were over 500 people including Senator Alfonse D'Amato (R-N.Y.); Representative Dave Martin (R-N.Y.), a member of the House Armed Services Committee; Acting Deputy Assistant Secretary of the Navy Richard Rumpf; Vice Adm. Richard Dunleavy, the commander of Naval Air Forces-U.S. Atlantic Fleet; and Vice Adm. Joseph Wilkinson, the commander of the Naval Air Systems Command.

During their speeches, Grumman Chairman Jack Bierwirth and Adm. Dunleavy answered the question of why the United States should invest in a new Intruder, instead of an all-new attack aircraft.

The company is building five A-6F prototypes under a no-profit, fixed price, full scale development contract worth nearly $500 million. The Navy had requested $702.2 million to buy 12 A-6F's in fiscal 1988, which begins this October, and $109.9 million for the advanced procurement of 18 A-6F's in fiscal 1989. The Senate Armed Services Committee wants to scrap the A-6F and step up funding for the Advanced Tactical Aircraft (ATA), the Navy's next generation of attack aircraft. The House panel has left the A-6F intact and cut the ATA funding extensively. A resolution is expected this fall when the Senate and House conferees meet.

"This plane represents the culmination of aerospace know-how," said Bierwirth. "It gives the Navy the attack capability it must have."

The A-6F's capabilities are unmatched by anything soon to leave the drawing board, he said. "This is the best that can be made today."

"We need the A-6F," said Adm. Dunleavy, who flew Intruders in combat in Vietnam. The A-6F will be the attack arm of the Navy carrier force until the Advanced Tactical Aircraft comes along. Until then, the Navy's pilots need the new Intruder's advanced radar and weapons systems and the power of its new General Electric engines, said Dunleavy.

"The threat they fly into today is phenomenally more complex, more dense, tougher than ever before," he said.

"Grumman produces one hell of a fine aircraft," the admiral added. "I have complete faith in what is going to be given to the Navy because of all the 'Grummies' who made it work."

The A-6F is designed to be the most advanced all-weather attack aircraft in the Navy and Marine inventories. Moreover, unlike previous Intruders, it will be able to defend itself against fighters with its own Sidewinder or Advanced Medium Range Air-to-Air Missiles.

Painted brilliant white, with a broad blue stripe bordered with red pinstripes running the length of the plane, the new A-6F glistened under the television lights. It carried demonstration bombs and Sidewinder missiles, but this A-6F prototype has no radar or weapon systems. This plane will test vehicle and aerodynamic improvements over the A-6E; first flight will be later this month. Grumman is building five prototypes and plans to deliver the first A-6F aircraft in early 1990.

"The A-6F has been a state-of-the-art aircraft for the Navy and the Marine Corps since it was introduced in 1963," Aircraft Systems President Renso Caporali said.

Over the years, Grumman has built 658 Intruders in various models. Another 25 A-6E TRAMS are scheduled for production before the first A-6F's come off the line. In addition, over 150 older models went through Grumman a second time to be upgraded.

While its distinctive shape has changed little, "internally, it's really something else," said Caporali. "The plane's structure has been beefed up to handle the ever-increasing loads it must carry."

To design it, Grumman engineers generated 5,000 new drawings and over 14,000 new engineering orders. "The A-6F's represent a very substantial investment, not only by the Navy, but by the industry," Caporali said. ■

In Demand. *Vice Adm. Richard Dunleavy, who flew the A-6 in combat in Vietnam, says the Navy needs the upgraded attack capabilities of the A-6F to counter the more formidable threat. Program Vice President Dan Collins (L) served as master of ceremonies at the roll-out; Aircraft Systems President Renso Caporali (2nd L) also spoke. (Photo by Gerry Costello)*

Between Two Houses. *Grumman Chairman Jack Bierwirth discusses the new A-6F with Senator Alfonse D'Amato (R) and Representative Dave Martin. Whether the A-6F will reach the production stage is up to Congress. (Photo by Gerry Costello)*

Fate Of A-6F Still Undecided

The Grumman A-6F Intruder is in the midst of a budget battle in Congress. The House favors production of A-6F's, while the Senate opposes it. The issue must be resolved in committee this fall.

At a news briefing before the A-6F rollout ceremonies, Grumman Chairman Jack Bierwirth, Senator Alfonse D'Amato and Representative Dave Martin talked about the future of the A-6F program.

Bierwirth said that 3,500 Grumman jobs on Long Island would be lost within the next few years if Congress decides not to provide funds for the A-6F this fall. Bierwirth added that another 10,000 jobs at subcontractors located nationwide would be affected, too.

"There are some in the Senate who believe that we should move to new technologies," D'Amato said. "I share in that belief." However, D'Amato pointed out that the A-6F is that technology until tomorrow's attack aircraft — the ATA — comes along. Without the A-6F, "there would be a six-year hiatus with no upgrade of capability."

"Will we continue to give our fliers the best, or wait six or seven years for a new airplane to come out?" added D'Amato. "We can't have it both ways."

Rep. Martin, who represents a New York district that borders on Canada and has no Grumman sites, said, "I have no dogs in this fight. This is not an economic development program. This is a defense program." Based on the merits of the A-6F program, he has concluded that "this is the way to go and it makes a lot of sense."

Dividend Declared

On July 16, the Grumman board of directors declared a dividend of 70 cents per share on the company's $2.80 preferred stock payable August 14, 1987, to shareholders of record at the close of business on August 4, 1987. The directors also declared a dividend of 25 cents per share of common stock payable August 20, 1987, to shareholders of record at the close of business on August 10, 1987.

Data Systems Merges CTEC With D.C. Ops

The Grumman-CTEC unit of the Data Systems Division in McLean, Virginia, has merged with Data Systems' Washington Operations.

The 120 Grummanites there will be assigned to appropriate Data Systems responsibility areas. The change does not affect services provided to customers under existing CTEC contracts.

In addition, the Customer Requirements group, headed by Vice President Dan Terry, has moved to the McLean facility. They may be reached at 6862 Elm St., McLean, Va. 22101, mailstop B99-361, (703) 556-7400.

Haise Discusses New Division:

'Basically, We Are A Mirror Image of NASA's Space Station Program Office'

RESTON, Va., July 31, 1987 — A tall rubber plant — a welcome gift from the landlord — is the only sign of interior decorating in Grumman's new Space Station Program Support Division headquarters building here. "It looked very lonely in the main lobby, so we moved it up to my office," says Division President Fred Haise.

The two-story building is empty; you can count the Grummanites working here on one hand. Even though NASA announced its selection of Grumman as the Space Station Program Support contractor on July 2, work could not begin until the contract was formally signed. That happened late this afternoon.

As support contractor, Grumman — with teammates Ford; Booz, Allen and Hamilton; Wyle Labs; Barrios; and CSAT — will help NASA manage the design and development of the space station. Overseeing the integration of all the space station systems is the job of NASA's Space Program Office, which will soon move from Washington, D.C. to its new headquarters in Reston, about a mile and a half away from Grumman's offices here.

"Basically, we are a mirror image of NASA's Space Station Program Office," says Haise. Each directorate in the new division — from engineering to safety — has a counterpart in NASA's Space Station Program Office organization.

"The space station is the biggest management job that NASA has ever undertaken," says Haise. The space station has been divided up into four work packages — each managed by a different NASA center. In addition, some components for the station will be built by NASA's international partners in the project: Japan, Canada and the European Space Agency.

'Here, we have to grow the team from scratch'

Unlike previous space projects, the space station is made up of individual components that will be mated in space. Space assembly has never been tried before on this scale. In addition, the space station is being designed with distribution systems; for example, all the various elements will share the same thermal, power, and data systems.

Because the components will be brought into orbit at various times over a two year span, the assembly must be meticulously defined — right down to what size pin conductors will be used. Any less than a perfect fit could render the component inoperable in space.

In short, NASA and Grumman have got to make sure once the space station hardware goes into orbit that all the components come together and work properly.

Grumman will assist NASA in program control and management, information systems, operations, program requirements and assessment, utilization, systems engineering, safety, reliability, quality assurance and international integration.

The bulk of the Grumman team will be engineers. "Many of them will be from the classical vehicle systems background, such as environmental or structural systems," says Haise. "The job doesn't require a large number of unique engineering skills.

"Right now, NASA has several dozen task orders for us, such as developing a preliminary plan of an engineering master schedule," says Haise. "As we move from the design and construction phases to test and launch, these orders will evolve."

Industry teams recently submitted their proposals for the four work packages. NASA is expected to select the winners of these hardware development contracts in November. "By then, we've got to compare our contract requirements to those spelled out in the work packages to see if there are any voids or overlaps," says Haise. "If we can determine these areas before the hardware contractors are on board, these conflicts can be negotiated into their contracts."

'The job doesn't require a large number of unique engineering skills'

The immediate challenge for the new Grumman division is to set up shop. "We expect the usual facilities headaches," says Haise. "Unlike other service contracts, we do not merely hire the people who were doing the job previously, such as Grumman Technical Servies did at the Cape. Here we have to grow the

Recruiting In Reston

A big street map of Reston, Virginia, is on the wall in Walt Kreide's office. Boxes of folders that extol the virtues of Northern Virginia are piled neatly in the corner. Kreide's desk is covered with tall stacks of resumes. The search is on for people to staff the newly formed Grumman Space Station Program Support Division.

During the program's peak, approximately 1,300 people will be on the program. Approximately 80 people will be transferred from other Grumman divisions; however, that figure might grow to 100 over the life of the program. The remainder will be hired from the outside.

"We've concentrated our recruitment effort in the Virginia/Washington, D.C., area," says Kreide, who is in charge of employment for the new division.

On July 12, Grumman ran an ad in the *Washington Post* and in a newspaper consortium which delivers papers to local communities free-of-charge. "Right now, we have received about 1,800 resumes, and the number keeps growing," says Kreide.

Splendid Suburbia. *A planned community, Reston has a population of 49,000; by the late 1990s, that should reach 68,000. Construction is underway on a wide variety of housing — from custom, lakeside homes to townhouses.*

As for Grumman transfers, many engineers were invited to a special presentation in corporate headquarters in July to learn more about job openings in the division. Division President Fred Haise was surprised at the turnout. Due to demand, the presentation was held for two additional nights. Approximately 450 people — including spouses — attended the sessions.

Engineers interested in applying for jobs in Reston were asked to submit their resumes to Joe Gold in Building 25.

Haise says that about a quarter of the 80 people currently slated to transfer come from the Space Systems Division. At least 60 people's names were included in the proposal submitted to NASA. The others almost all have previous space program experience.

A Grumman review team of four or five engineers, led by John Roukis, will perform the initial screening of outside applicants, and arrange for potential employees to meet with individual section heads.

Reston is in Fairfax County, about 20 miles west of Washington, D.C., and has a strong base of engineering talent.

About 22 years old, Reston is a planned community. The present town population is around 49,000; the town developers project completion of residential development in the late 1990s when population is expected to be between 58,000 and 62,000.

Reston's variety of new housing includes condominiums ranging in prices from mid 50s to $144,000; townhouses, from $99,500 to $275,000; and single family homes from $157,000 to $300,000. In addition, there are 3,700 rental apartments renting from $370/month to $880.

"Reston is far enough in the suburbs to escape the traffic and the big city hubbub," says Kreide, "but close enough for city life when you want it."■

team essentially from scratch."

That involves recruiting, hiring, and then training people. (See sidebar on opposte page.) Grumman is under contract to have over 200 people on board across the team by September. "Of course, we must anticipate a learning curve," says Haise. "In many cases, new engineers will be under the wing of an experienced, senior person, after basic indoctrination training. They will be heavily dependent on that experienced worker for a while to learn the ropes. We have to make sure that the senior guy isn't being dragged down."

By 1990, there will be 1,260 people working on the program. Approximately 700 will be engineers. While most will be stationed at Reston, about 400 people will be assigned to the various NASA work centers, including the Marshall Space Flight Center in Huntsville, Alabama; the Johnson Space Center in Houston, Texas; the Goddard Space Flight Center in Greenbelt, Maryland; the Lewis Research Center in Cleveland, Ohio; and the Kennedy Space Center in Florida. Field offices may also be required in Japan, Canada, and Europe to assist in the integration of components developed by NASA's international partners.

Haise and three Grummanites involved in the local recruitment effort are living a spartan life in the new division headquarters. They take turns playing doorman,

'The space station is the biggest management job that NASA has ever undertaken'

coffeemaker and secretary. Haise is more than happy to put up with the inconveniences.

"After we submitted our best and final offer on June 1, there was a month of silence while NASA evaluated our proposal," says Haise. "That was a long month. Nowhere along the way was it a foregone conclusion that we were the favorite. We were competing against a prominent team of talented companies. In short, no one put their homes on the market."

Later today, Haise is heading home to Florida. "I've got to cut the lawn and fix up the yard," he says. "The real estate agent wants to bring people by next week."■

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The 3/31 Spirit. *Hundreds of Grummanites at Melbourne Systems Division in Florida went out to the airstrip on July 31 to get a closer look at the aircraft that will take Joint STARS aloft on March 31 of next year. (Photos by Bob Settles)*

Joint STARS Aircraft Arrives At Melbourne

MELBOURNE, Fla., July 31, 1987 — This afternoon, several hundred Grummanites gathered on the new taxiway here to celebrate the arrival of the Joint STARS aircraft. The E-8, a military version of the Boeing 707, will be the first of two development planes that will take Joint STARS aloft.

"Until now, the program had essentially been paper," said Melbourne Systems President Al Verderosa. "When you are working on a development program, it's always a morale boost when you start to see the hardware arrive."

Joint STARS is an Air Force/Army battlefield management system that will detect, locate, track and classify enemy vehicles at long range.

The day before the plane arrived, Grummanites here began wearing blue and white buttons with "3/31 Go For It" printed on them. Banners and posters with similar slogans are hung up all over the building. The first flight of the Joint STARS E-8 will be March 31, 1988.

Grumman will extensively modify the aircraft to the Joint STARS configuration by installing and integrating the prime mission equipment at its Integration and Test Facility at the Melbourne airport.

The airborne platform provides wide-area radar surveillance of the battlefield area, including moving- and fixed-target detection. This radar data is displayed in real-time at numerous operator consoles on board the E-8 and at Army mobile ground stations. The system will permit both Air Force and Army commanders to effectively direct weapons against enemy targets.

Boeing Military Aircraft Company in Wichita, Kansas, will deliver the second E-8 to Melbourne Systems in February of next year.■

Media Event. *Melbourne Systems Division President Al Verderosa (C) talks with a newspaper reporter shortly after the first E-8 Joint STARS aircraft landed in Melbourne.*

Herndon's Number One. *On May 18, the Herndon Post Office in Virginia became the first to run its routes with the new Grumman-built LLVs. They received numbers 0003, 0004, 0005 and 0006. Truck serial number 0001 went to the Smithsonian Institution, and number 0002 went to U.S. Postal Service Headquarters in Washington, D.C. Herndon post office workers Mike Swinzow (L) and Chuck Cooksey show off one of their LLVs.*

Retiree Obituaries

William F. Baldwin of 917 Fassifern Ct., Hendersonville, North Carolina, died May 8, 1987. He retired in 1962.

Samuel Bergman of 68 Stuart Dr., Syosset, N.Y., died June 14, 1987. He retired in 1975.

William J. Blyman of 74 Froelich Farm Rd., Hicksville, N.Y., died April 14,1987. He retired in 1987.

George W. Davis of 135-35 Goleta St., Arleta, California, died June 29, 1987. He retired in 1976.

Steven Doktor of 16 Madison Ave., Hammonton, New Jersey, died June 26, 1987. He retired in 1975.

Webster Fleet of 128 Lockwood Ave., Farmingdale, N.Y., died June 21, 1987. He retired in 1971.

Roland C. Hilbert of 35 Senix Ave., Center Moriches, N.Y., died June 10, 1987. He retired in 1982.

Edward R. Kern of 10 Bluegrass La., Commack, N.Y., died June 5, 1987. He retired in 1984.

John Kozsdiy of 47A Brookside Dr., Lansdale, Pennsylvania, died July 4, 1987. He retired in 1977.

William C. Leiber of 62 Orchard Farm Rd., Port Washington, N.Y., died June 21, 1987. He retired in 1973.

Herman C. Lohmann of 298 Sheep Pasture, East Setauket, N.Y., died June 27, 1987. He retired in 1966.

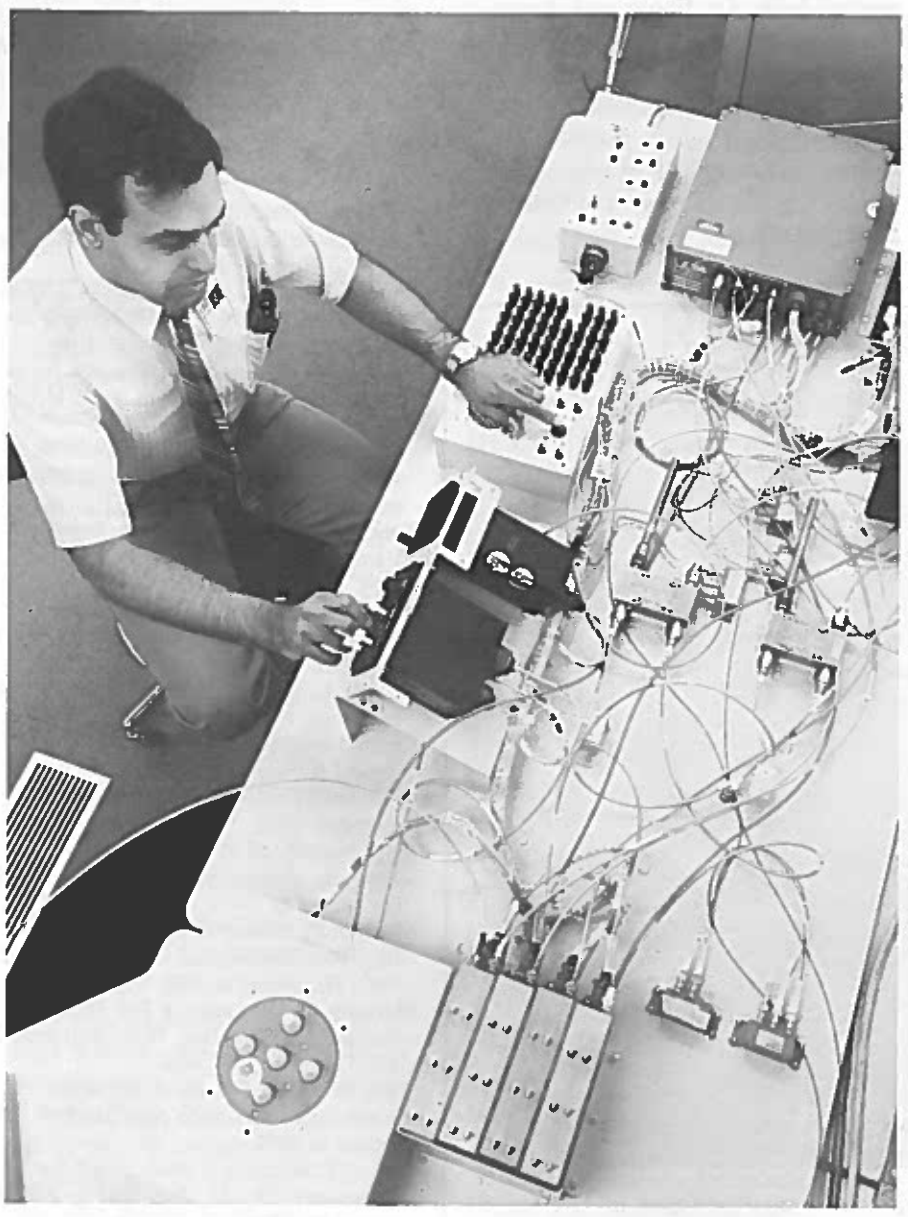
John R. Mollico of 118 Bryan Ave., Amityville, N.Y., died June 25, 1987. He retired in 1977.

James V. Salantri of 4069 103rd Ave., Clearwater, Florida, died June 6, 1987. He retired in 1973.

Joseph F. Sekelsky of 58 Holbrook St., Milford, Connecticut, died May 9, 1987. He retired in 1969.

Robert M. Sherman of 43 Floral Dr. West, Plainview, N.Y., died April 12, 1987. He retired in 1976.

F-14D Tomcat Sharpens



BETHPAGE, Long Island – Not far from where Diane DeBlasio works in Building 14, there is a sign that reads "Fleet Defense Begins Here."

DeBlasio is a software engineer in the brand-new F-14D Avionics Development Laboratory. She helps develop complicated software programs that test other complicated software programs — in this case, the computer code that tells the F-14D's airborne electronics what to do.

This new lab occupies 19,500 square feet in Building 14, the William T. Schwendler Engineering Development Center. It is home to about 180 software and electronics engineers and technicians. DeBlasio works in its system test facility, where simulations test the avionics equipment housed in two F-14 forward sections.

"We are now seeing the entire package working together," says DeBlasio, who joined the program two-and-a-half years ago. "There's a lot of activity, and a lot of teamwork. It's exciting."

If sets of numbers, letters, and assorted strange characters seem a bit removed from sorties at sea, consider this: structurally, the F-14D is pretty much the same as its predecessors. Software — the programs, data and routines that tell electronic equipment what to do — is what the F-14D is all about, lots of it. One million lines of software code will fly aboard the F-14D.

"Software is the key to systems integration — that is, tying together extensive electronic equipment into a properly functioning weapons system," notes Joe Van de Wetering, director of engineering for the F-14D. "The F-14D will have the latest in radar and avionic equipment. Its two Navy-standard AYK-14 mission computers will act as electronic traffic cops for a total of 19 other microprocessor-controlled devices."

The F-14D is scheduled to fly for the first time in mid-December, and everything must work in perfect harmony by then. The flight date is actually several weeks ahead of the contractual obligation and the new Avionics Development Laboratory has been instrumental in keeping ahead of schedule.

"Airborne real-time software is a highly complex science," says Neil Gilmartin, engineering manager for F-14D development. "The corporation recognizes that and supports us with the tools we require. The lab represents a $12 million investment. Grumman expects this to be the home of all future F-14 development."

The lab consists of three functional areas: a software facility, subsystems labs, and the two system test facilities. The software development facility and its related mission computer software test station handle the software inside the AYK-14s.

Down the hall are separate labs for the plane's computer hardware, electronic warfare systems, communication/navigation/identification systems, sensors, radar, stores management, displays and controls. The radar lab is not yet on-line; it will go into operation later this month when the radar arrives from Hughes Aircraft.

Each of these seven labs has the equipment required to test and integrate a particular device, and to generate the software code for it.

Software is what the F-14D is all about — one million lines.

"Every subsystem must be fully checked out in its subsystems area before it goes to the system test facility," says Jim Dante, deputy engineering manager for F-14 development. "The subsystems labs also do in-depth analyses of any problems uncovered later by the system test facility and in the later flight tests."

The entire lab complex is tied together by the military standard 1553 data bus, which communicates at one megabit per second. This enables, for example, any subsystem lab to interface with another subsystem via the mission computer test station.

The engineering team has already had several important reviews with Navy officals, including a critical design review at the end of June of the entire air vehicle, avionics, and software. During the week-long review, the Navy identified 130 problems. By the week's end, 127 of them were solved.

Testing 1,2,3. *Walter Ng and Harvey Schor review flight control software changes in the system test facility. The forward fuselage in back functions as a test article. The new Avionics Development Lab also has seven subsystem labs. In the electronic warfare area, Frank Zito does a system verification on the F-14D's ALR-67 radar warning receiver. In the computer hardware area, Ron Digi runs acceptance tests on AYK-14 mission computers.*

Its Digits In New Lab

The displays and controls lab is a good place to watch problem-solving in action. The lab has four snazzy color simulators, which function as sort of an electronic palette on which the engineers can draw and re-draw the cockpit's systems.

The simulators have real aircraft seats and real control sticks. The simulation program is like a movie: it behaves like a plane in flight, so things move and values change on the various displays and readouts.

'We begged, borrowed and stole people for this project.'

"The fleet pilots and radar intercept officers evaluate how the aircraft's systems will work," says Gilmartin. "The simulators let them see the controls and displays in action. They can alter anything from the information being displayed to the shape of the symbols on the screen."

In the system test facility, both F-14 forward sections are cloaked in lightweight, transparent plastic instead of their usual aluminum skins. This permits easy access to components. Inside is the actual F-14 structure containing the same wiring harnesses, instrumentation, and avionics equipment as the flight test aircraft.

Simulation programs running on Digital Equipment VAX computers make the electronics perform the way they would in an actual mission. Computer terminals next to the station collect the data for analysis instantly — known as real-time analysis — or after tests are concluded.

'In effect, we intend to try before we fly.'

When the flight tests begin in December, some of the lab's people will be assigned temporarily to Calverton. When there are flight checks on the navigation system, a group of engineers from that subsystem laboratory will be asked to go, and so on. The lab's resources will help the rest of the people solve flight test problems.

"The F-14D's software is so complex it will be developed in six versions over the development cycle of the aircraft," says Gilmartin. "The last version is scheduled to be ready for flight test in March of 1990. Plus, the Navy is already talking about a pre-deployment upgrade to the F-14D."

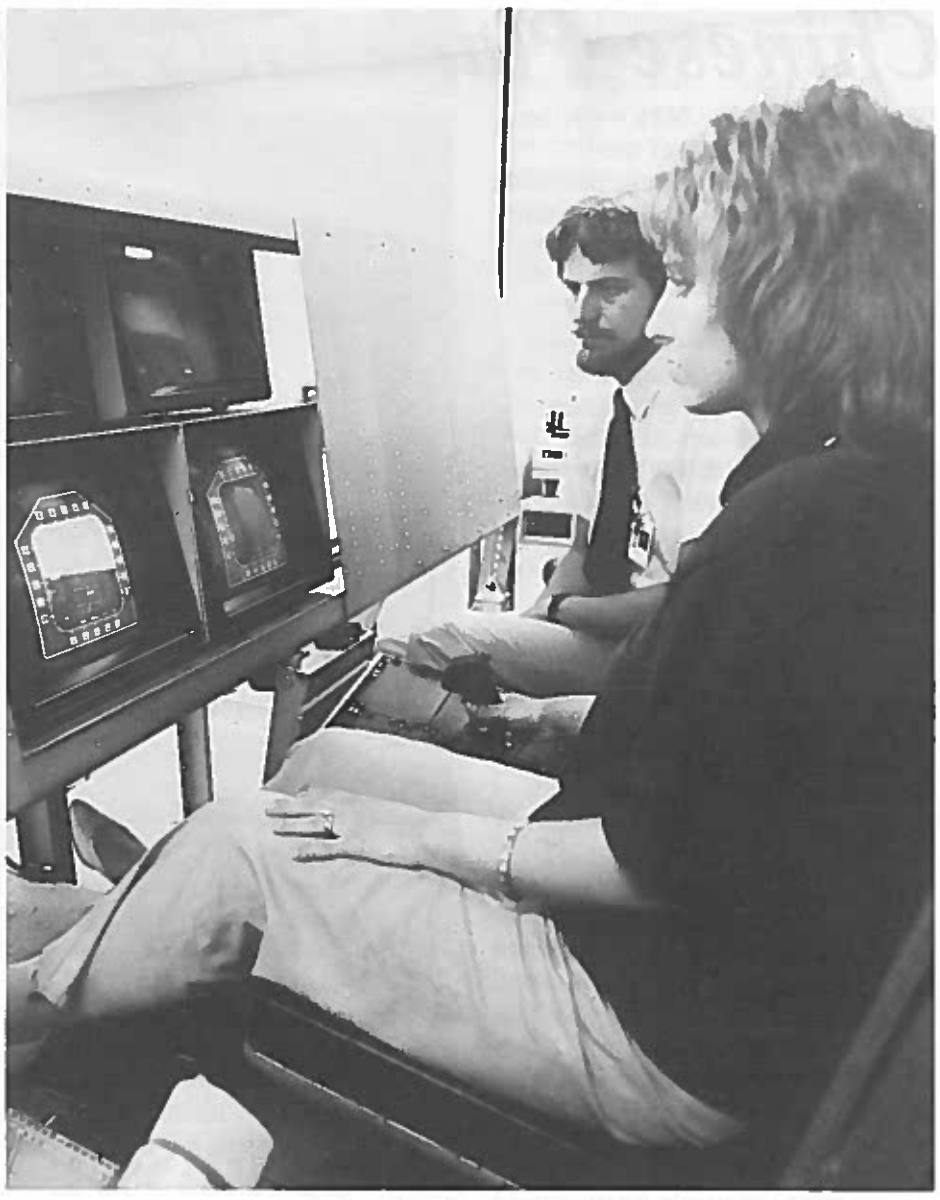
Besides the code in the plant itself, about 300,000 lines of test software had to be created for the F-14D project.

Test engineer Alex Mallow demonstrates how these test systems work by operating a touch sensitive terminal derived from an F-14 trainer. When he selects one of the function squares, it beeps like a microwave oven and sets events in motion on an adjacent red and black terminal. The screen shows such items as airspeed and latitude and longitude.

"We also have the capability to insert a whole range of malfunctions, such as an altimeter failure or a failure of everything at once," says Mallow. "We're always testing out each system's on-board test program. This is an on-going diagnostic program that checks out the hardware and software integrity constantly as the plane flies, and notifies the pilot of any problems."

Mallow and DeBlasio work side-by-side in the system test facility, and are typical of the team as a whole: the experienced veteran, the software whiz kid. "People are working from 6:45 a.m. to 10:30 at night, plus Saturdays," says DeBlasio. "If one person has a problem, three or four people are there to solve it. There's a tremendous team spirit here."

"We're lucky to have some very skilled people," says Van de Wetering. "We went out and begged, borrowed and stole people for this project. It's a dynamic team and I'm proud to be part of it."■



Picture Perfect. *JoAnne Calamia and John Spiletic run tests of F-14D display systems in the simulation systems development lab. (Photos by Rich Bruenig)*

Snip!

Monday, July 27, was a great day to tour the brand-new F-14D Avionics Development Laboratory. Its computers require chilly air conditioning — a respite from the summer's heat for the Grummanites, Navy officials, and subcontractors gathered for the lab's ribbon cutting. The lab actually went into operation on June 30.

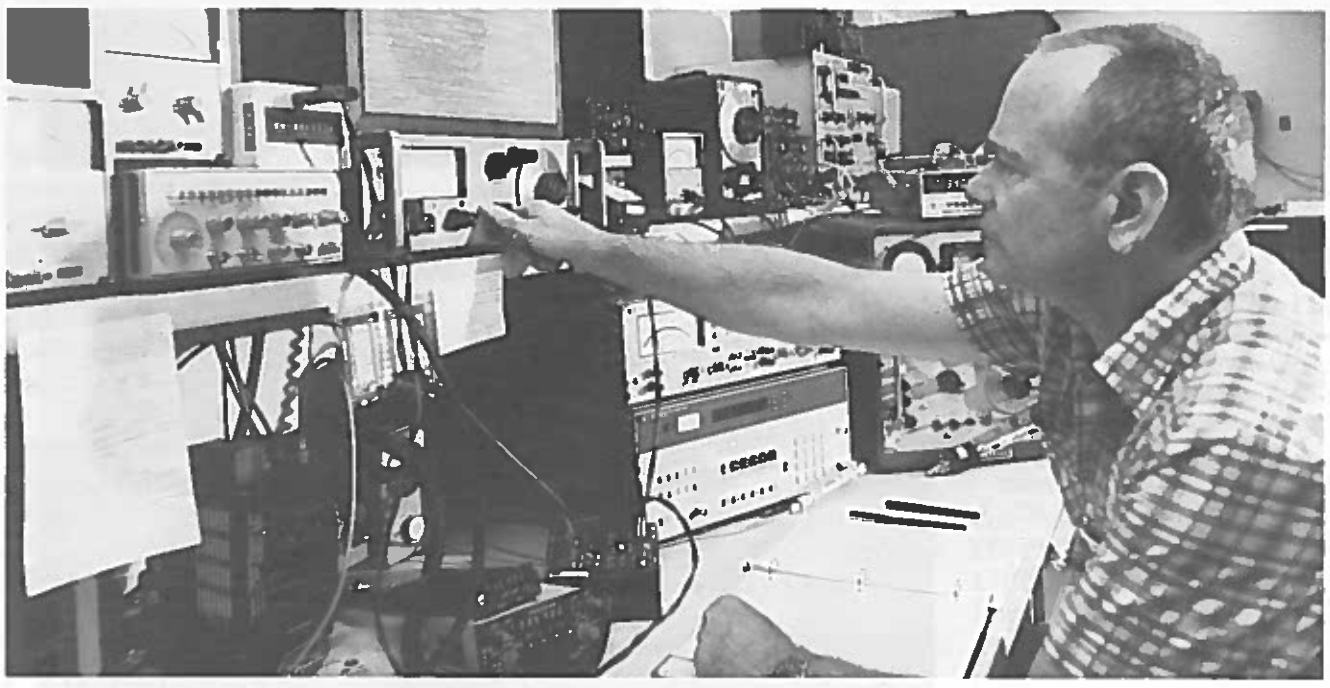
Rear Adm. George Strohsahl, the Naval Air Systems Command's program director for tactical air, called the lab pivotal to the overall development project. "The cost effectiveness of the lab will be proven when the F-14D goes to flight test, with the confidence that the hard problems will have already been identified in the lab and solved," he said.

Strohsahl also noted that the F-14D is sorely needed by the fleet. "The 1960s technology that went into the F-14A has served the Navy very well," he said. "But fighter technology is increasing throughout the world and the F-14A must be replaced so our carrier battle groups can maintain maritime air superiority. The decision to upgrade the F-14A instead of developing a totally new fighter is a real tribute to the Grumman engineering team in having designed such a fine airframe in the first place."

"In effect, we intend to try before we fly," said Grumman Aircraft Systems President Renso Caporali. "We're all confident that the F-14D's avionics, along with the re-engining now going on at Calverton, will enable the F-14D to be the Navy's premier fighter for the remainder of the century. Not only that, it will be a world-class fighter."

Capt. and Rear Adm. Select Bill Bowes, the Navy's F-14 program manager, noted that the early opening of the laboratory on June 30 demonstrated that the program "is alive, well, and on track towards great success."

"It isn't companies that make a development a success; it's people," said Bowes. "Grumman has assigned its very best to the F-14D program. It's a true team effort, and leadership made it happen."



Music To His Ears. *In the communications/navigation/identification lab, Art McKee checks audio distortion on the F-14D ARC-182 radio system.*

Chinese Plane Gets A Makeover At Grumman

WOODBURY, New York — A new, multinational version of the Chinese-built F-7M fighter has taken shape on the computer scopes here.

Called the Sabre II, the plane would be equipped with a U.S. engine and avionics and would become the premier fighter of the Pakistan Air Force. A team of Grummanites, Chinese engineers and Pakistani officers has been working on a feasibility study since March and has developed a baseline configuration. This is an early-stage design that guides future engineering effort.

"We've come up with an aircraft design that is technically feasible," says Bob Roemer, program director. "Now we're in the final phase of the study. We are determining the program costs for full scale development and flyaway cost estimates."

The final report will also include a proposed integrated logistics support plan and production schedule. A group of Grummanites delivered the final report in Pakistan on August 12. The Pakistanis will then determine whether to go ahead with the project, based on the cost estimates. If they give it a green light, the request-for-proposals for full-scale development will be issued September 30, with a contractor selected three months thereafter.

A Three-D View. *In Woodbury, Group Captain Saleem of the Pakistan Air Force discusses the Sabre II design with Mike Pelehach, retired president of Grumman International and consultant to the study program. The cockpit shown is a soft mockup of the design. (Photo by Marie Trimborn)*

Grumman has a sole source contract for the study. But other companies will be invited to bid when Pakistan issues its request-for-proposals for full scale development.

The baseline configuration calls for a totally redesigned forward section of the aircraft, with new nose-wheel steering, environmental control and escape systems. The aft fuselage is revamped to accommodate the U.S. engine. Other modifications include a new engine mount, added dorsal fuel tank, increased-capacity interior tanks, a revised engine compartment door and an arresting hook. Each wing has an added store station for the Sidewinder missile.

All of the engineering drawings for the Sabre II were produced on Grumman's computer aided design and manufacturing system. A performance analysis was done using an existing Grumman computer program.

Made of foam-core paper, a soft mockup of the Sabre II's new cockpit was produced by the Engineering Design Aids group in Bethpage's Building 5. The mockup gives the engineering team and the customer a three-D view of the cockpit and instruments, and allows design changes to be made more easily.

If the plane goes into production, brand-new airframes will be built. A group of Grummanites recently visited the Pakistan Air Force's Kamra depot facility, where final assembly would be done. By determining its assembly capabilities, they were better able to develop a workable schedule.

The Chinese would build the aft and wing sections, a U.S. firm would build the forward section, and the Pakistanis would join them together and install engines and electronics. This is in accordance with U.S. Department of Defense regulations.

"The goal is to give Pakistan its first operational squadron of Sabre IIs and trained pilots by 1993," says Roemer.■

Reel-y Big. *This 'Cutty' cabin is one of three versions in the Grumman 'Big Water Series' of aluminum fishing boats, which begin production this month. Built by the Grumman Boats unit of the Allied Division, the boats are built tough enough for large fresh- and salt-water lakes. This 22-foot-3-inch boat has a beam of 101-inches — a big selling point since the legal trailer limit is 102 inches. Other models include another Cutty and a center console model version (R).*

Personals

My family and I would like to thank all of my husband's co-workers and friends for their kindness, thoughtfulness and expressions of sympathy during the recent loss of my mother. **Mrs. Vincent Fiust**

My family and I would like to thank all my husband's co-workers for the beautiful flowers, donations, and kind expressions of sympathy during the recent loss of my husband. **Mrs. Jean Szabo**

I wish to thank all my co-workers, friends and ESO for their concern during my recent operation. **Marvin Mitteldorf**

My family and I wish to extend our deep appreciation and thanks to all my co-workers, friends and ESO for their kind expressions of sympathy and condolences during the recent loss of my father. **Norman L. Garms**

My family and I wish to express our appreciation and thanks to my co-workers and ESO for their kindness and sympathy during the recent loss of my father. **Don Gleason**

The entire family of Letah Hoffman wishes to thank all whose support and expressions of sympathy helped us so much during the recent time of our mother's death. **Cap and Norma Caporali**

My family and I wish to express our deepest appreciation to all the good friends at Grumman for their kindness and support during the recent loss of my wife. **Wayne Bratchie**

The family of Edward J. Minden would like to thank his many co-workers and friends at Grumman for their kindness and support during our recent loss. **Helen P. Minden**

On behalf of the Powles family, we would like to extend our sincere appreciation to all our Grumman friends, co-workers and ESO for the lovely flowers and kind expressions of sympathy during the recent loss of our father. **Doris Whelan and Diane Riel**

Hot Line. *In Grumman's Facilities Maintenance Operations Center, Jim Fitzpatrick uses a host of equipment to monitor energy usage at Grumman buildings all over Long Island. (Photo by Rich Breunig)*

Conservation Takes Heat Off Power Crunch At Grumman's L.I. Facilities

LONG ISLAND, N.Y. -- The lights went out several times this summer at Grumman facilities here. But to call it a brownout would be a misnomer.

The dim lights and warm indoor temperatures were part of an energy-saving plan taken at the urging of the Long Island Lighting Company. Hot weather taxes LILCO's generating capabilities, and the utility asks large commercial users to "load shed" — to turn off or lower settings on nonessential equipment. As Long Island's biggest company, Grumman is the first in line.

Grumman has an interest in preventing brownouts: they can damage computers and industrial machinery. In a true brownout, LILCO lowers output across the board to stave off a complete blackout.

"When LILCO has a problem, we give up any power we can without curtailing production," says Dean Cassell, vice president for Product Integrity and Environmental Protection. "LILCO is operating its generators at maximum capacity, and when it does that it increases the risk of an equipment breakdown. Several weeks ago LILCO lost two generators in one day."

Though the population has remained fairly stable, commercial construction has boomed on Long Island. Indoors, businesses rely more on sophisticated computers, which consume wattage and sometimes require special cooling equipment. Furthermore, as residents have become more affluent, they are apt to own one or more power-hungry air conditioners and a host of other electrical appliances.

Several years ago, Grumman made up a detailed procedure for reducing electrical loads step-by-step (see sidebar). It has paid off on several dozen occasions, and not only in the summertime. "LILCO does preventive maintenance on its generators during the winter when demand is low," says George Turney, director of Facilities. "At such times LILCO has less generating capacity and has called for load shedding."

Grumman is preparing a corporate directive with guidelines for handling more serious situations, such as "rolling" blackouts. These blackouts would occur in one or more parts of the Island, and would be an attempt by LILCO to prevent an Island-wide blackout.

All plants must be evacuated during a blackout unless certain conditions are met. Fire alarms, telephones and public address systems must remain operative. The plant must have adequate light and ventilation, and emergency lighting systems must be able to remain on during the scheduled or anticipated duration of the blackout.

"The directive touches on other questions such as the safe evacuation of handicapped employees when the elevators go off, and securing classified documents," says Cassell. "Basically, it gives building supervisors guidelines by which to make proper decisions."

Because they have their own electrical transformers, Grumman's facilities in Bethpage and Calverton are unlikely to be affected by a brownout. Automatic voltage regulators can compensate for all but the most severe power dips. Bethpage and Calverton will, however, be affected by a total blackout.

Melville, Woodbury, Holtsville, Great River, and Bohemia are the most problematic because the buildings there are part of LILCO's main electrical distribution matrix. At the end of 1986, Grumman installed an uninterruptible power supply in Holtsville. This is a generator that protects computer systems against power dips and outages.

"This system has been used eight times since January 1," Turney states. "In addition, some equipment is designed to turn off automatically if power drops low enough."

Beyond load shedding, Grumman now tries to procure machinery that can exist on a lean energy diet. "For example, the original computer aided design systems required air conditioning," says Turney. "New systems are more temperature tolerant.

"But it's not always possible. The really powerful new systems are chockablock with circuitry that has to be cooled. So the technology of the '80s in many cases has required more power — and more regulated power."

The problem is not just confined to Long Island, either. Other areas have occasional power shortages in the summer. In Stuart, Florida, the reverse is true. Most brownouts there occur during the winter, when residents crank up electric heaters.

The company has taken steps to create alternate sources of power. Ground breaking is scheduled in November for Grumman's electrical co-generation plant. This General Electric-built natural gas generator will save Grumman $3-4 million a year on its Bethpage power bills.

Nassau County, Long Island is considering co-generation in municipal building complexes and several shopping centers are interested in building co-generation plants of their own. Co-generation helps the public at large, too, because electrical power produced reduces the demand on the LILCO system.

Grumman already receives 10 megawatts of electricity from the Fitzpatrick nuclear power plant near Rochester, New York, saving $2-3 million per year. Plus, a new transmission line, dubbed Marcy-South, will enable Long Island to obtain Canadian hydroelectric power in the 1990s.

All this will happen none too soon. Cassell expects the problem to become more critical. "We're confident we can make it through this summer without a brownout," says Cassell. "Load shedding will take care of the problem. Next year possibly, we will see brownouts, and in summer of 1989, a critical shortage of electricity. The co-generation facility will go into operation in July of that year. It will be in the nick of time."■

Trimming The Megawatts

In a crunch, LILCO notifies Grumman's Facilities Maintenance Operations Center, which is next to Bethpage's Building 2.

The operations center in turn phones superintendents at all Long Island buildings, telling them to reduce power consumption. Building crews dim lights and raise climate controls three to five degrees, except in computer rooms. The center also notifies plant managers, who determine if some equipment in their areas can be shut down. In some cases, work can be shifted to the night shift, when electric usage is down.

In the Operations Center, computers keep a minute-by-minute log of each building's electric usage. On July 24, the center was called by LILCO at 11:45 a.m. One hour later, Grumman's Long Island facilities had reduced consumption by a healthy 3½ megawatts.

"That's no small amount of electricity," says John Igenito, facilities coordinator at the center. "That's the equivalent of what Building 5 in Bethpage uses."

The job isn't over once all the calls are made. The operations crew keeps watch to make sure consumption does not creep back up. usually, LILCO tells Grumman when systems can return to normal.

July 24 was different — no end time was provided. This crisis was due to the diversion by LILCO of electricity to New England, which was in danger of a blackout, and LILCO could not predict when the situation would end.

New Grumman Invention Foils High-Tech Thieves

Even the title character in the movie "Thief" probably couldn't break through a computer-security device recently patented by two Grummanites.

The security patent was developed by Todd Gaenzle of Information Security in Bethpage and Bill Zeidler of Systems Support in Woodbury. Gaenzle and Zeidler, jointly with Grumman Data Systems, were issued U.S. patent no. 4,655,429.

While over 150 Grummanites have earned patents over the years, this is only the second patent in the Data Systems Division's history. That's because most of its products are computer software, a relatively new field for which patent laws are still in the making.

The device solidly fastens up to six personal computers to a desk or other hard-to-move surface. This includes equipment such as printers and modems — which are easy to conceal and steal. The device can also be used for other applications, such as audio-visual equipment, telephones, typewriters, phone recorders or any other similar type of hardware.

The invention had its beginnings several years ago when Gaenzle was asked to conduct a survey of computer-security devices on the market. Gaenzle felt he could come up with something better. Zeidler, a machinist by trade, provided advice on tamper-resistant metals and screws.

The security mount consists of a central anchoring pad and up to six cables. The parts fit together in such a way to stymie thieves. For instance, all the screws were custom-machined on computer-numerically controlled equipment. Conventional tools cannot be used to remove them.

Furthermore, the central pad comes in two parts: the bottom portion has slots to accept the cables. After they are rigged up, a second block of metal fits over the first, making the slots inaccessible.

Crook-proof. *Todd Gaenzle and Bill Zeidler developed this security mount for computers.*

Attached to each cable is a plate, which is attached to components such as terminals, printers and modems. A high tensile-strength industrial epoxy is used for a strong bond.

The pads and the plates are of case-hardened aluminum. The cable is impervious to heat applications and cutting tools, making it extremely difficult to steal the PC components.

"I experimented at home," says Gaenzle. "I used bolt cutters, hacksaw blades, you name it. All of these tools had little or no effect on the cables."

Neither Gaenzle or Zeidler had previously obtained a patent. A Long Island firm has been selected to produce the security mount. Grumman has contracted the vendor to begin production of the device. It will be available throughout the corporation in the near future, and will cost $125 plus installation, and will be installed by Grumman.

If you are interested in seeing a prototype or would like to purchase a security mount, contact Gaenzle or others in Information Security at Ext. (111) 58360 or 54465; (516) 575-4465. ■

New Ground News. *Grumman President John O'Brien talks to reporters after hosting the July 23 ground-breaking ceremony for the new EA-6B building in Calverton. The two-story building is scheduled to be completed next June. (Photo by Gerry Costello)*

Work Begins On New Prowler Lair

Ground was officially broken for the new EA-6B building in Calverton on Thursday, July 23. The ceremony was hosted by Grumman President John O'Brien and attended by Cdr. Charles Bixler, the head of the Navy Plant Representative's Office in Calverton, and state and local officials, including Suffolk County Executive Michael LoGrande.

The two-story building, which will be finished next June, is being built across the street from the Calverton facility's main gate. It will feature shielded rooms with labs on the first floor and computers and offices on the second.

Obituaries

William F. Beard of Maintenance, Bethpage, Corporate Services Division, died June 24 at the age of 43. He had been with the company since 1984 and his mailing address was P.O. Box 1821, Huntington Station, N.Y.

Peter C. Dawidziak of Electro/Mechanical Design, Bethpage, Aircraft Systems Division, died July 13 at the age of 48. He had been with the company since 1971 and resided at 39 Harp La., Sayville, N.Y.

Ralph Falero of Fuselage Assembly, Bethpage, Aircraft Systems Division, died July 2 at the age of 55. He had been with the company since 1951 and resided at 244 Crombie St., Huntington Station, N.Y.

Edgar S. Harris Jr. of Contracts, Bethpage, Corporate Services Division, died July 17 at the age of 59. He had been with the company since 1958 and resided at 3 Potter Ct., Smithtown, N.Y.

Thomas J. McEntee of ILS Operations Support, Bethpage, Aircraft Systems Division, died July 7 at the age of 60. He had been with the company since 1964 and resided at 24-48 Seebode Ct., Bellmore, N.Y.

Thomas Maguire of Design Engineering, Melville, Aerostructures Division, died July 8 at the age of 56. He had been with the company since 1979 and resided at 8 Foxwood Dr., Huntington Station, N.Y.

Lois Melisaratos of Pricing and Proposals, Bethpage, Corporate Services Division, died July 3 at the age of 45. She had been with the company since 1983 and resided at 753 Wickshire Dr., East Meadow, N.Y.

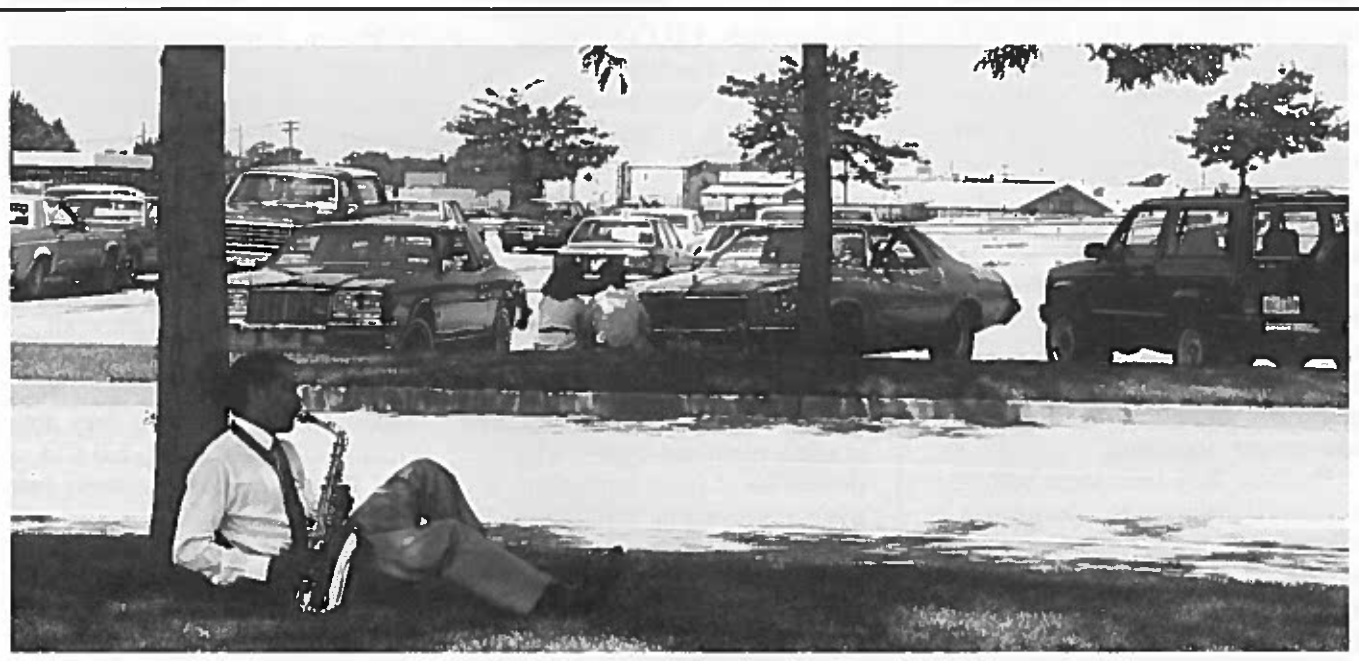
Edward J. Minden of Electrical Fabrication, Calverton, Aircraft Systems Division, died July 6 at the age of 70. He had been with the company since 1962 and his mailing address was Box 45, Calverton, N.Y.

Genevieve M. Olney of Engineering, Pt. Mugu, Aircraft Systems Division, died July 17 at the age of 43. She had been with the company since 1986 and resided at 5209 Neptune Sq., Oxnard, California.

Henry W. Patterson of Field Administration, Bethpage, Corporate Services Division, died June 9 at the age of 65. He had been with the company since 1950 and his mailing address was P.O. Box 367, Stony Brook, N.Y.

Joseph Ruggiano of Prototype, Bethpage, Aircraft Systems Division, died June 25 at the age of 52. He had been with the company since 1957 and resided at 2046 Haring St., Brooklyn, N.Y.

Roy E. Schauer of Manufacturing Scheduling, Bethpage, Aircraft Systems Division, died June 29 at the age of 61. He had been with the company since 1964 and resided at 50 Shadyside Ave., Port Washington, N.Y.



Lunchtime Serenade. *Gerald Clermont practices his saxophone outside Building 25 in Bethpage during his lunch break. 'People tell me I sound good,' he says. 'I just started lessons, so I don't know if they are telling me the truth.' He's been practicing during lunch for three weeks now, and so far he hasn't gotten any complaints. Clermont works for the Advanced Energy Systems department of the Space Systems Division. (Photo by Walt Hudson)*

Long Island Gets Its First LLVs

DEER PARK, N.Y. July 28, 1987 — Neither rain or snow nor sleet, but a blue sky hailed the arrival of the first Grumman Long Life Vehicles on Long Island.

The new vehicles, which are built by the LLV Division of Grumman Allied in Montgomery, Pennsylvania, will serve the community of Deer Park, which is several miles east of Grumman's Bethpage headquarters.

"We're especially proud that our neighbor on Long Island was awarded this contract," said Roger Nienaber, the general manager/ postmaster of the Hicksville Division, as he introduced the new vehicles to the press here in front of the post office today.

Grumman will build 99,150 LLV's over a six-year period under a $1 billion contract, the largest single contract in Grumman's history.

On Long Island, the LLV's will eventually replace 1,900 aging Jeeps, some of which are early '70s models. Deer Park now has 29 LLVs. The Island will have 146 by the end of the year.

The LLV's aluminum body is designed to last 24 years and the General Motors chassis 12 years, compared to the eight years that the U.S. Postal Service gets from its quarter-ton Jeeps.

Letter carrier Fred Hasbrouck, the first Postal Service employee on Long Island trained to operate the LLV, took his van on his route for the first time this morning. "It runs great and handles very well...better than the trucks we used to have."

A Long Island letter carrier delivering mail from a van drives only 10 to 14 miles each day, but makes between 350 and 400 stops over that stretch. With touches like the LLV's swiveling seat, "the letter carrier should be able to do the job a little bit easier," said Nienaber.

However, no new vehicle is perfect for every owner, and Hasbrouck did suggest a few improvements. "I wouldn't mind AM/FM, cruise control and air conditioning."■

LLV Update

On July 25, the first production Long Life Vehicle was delivered to the Smithsonian Institution and added to a Postal Service exhibit there.

Three days later, the Grummanites who make the LLVs hit a milestone when they reached a production rate of 55 vehicles a day. They are working toward a production rate of 95 a day and are on schedule to meet that rate.

"I am proud of the quality of these vehicles, and all the trucks that Grumman produces," said Ron Peterson, Grumman Allied Division President. "As the production rate had begun to pick up speed, some quality problems had been reported in some vendor-furnished parts, but these problems have been ironed out."

We Deliver. *Grumman Allied President Ron Peterson (L) and Roger Nienaber, the general manager/postmaster of the Postal Service's Hicksville Division, were on hand for the July 28 ceremonies marking the arrival of the first Long Life Vehicles on Long Island. One LLV delivered mail that morning. (Photo by Bob Sagliocca)*

Keeping Track Of PPO Dentists

This year, the Grumman/Travelers dental insurance plan is offering a preferred provider organization (PPO). The dental PPO is a group of dentists who have agreed to a rate structure for their services. For some procedures, a PPO dentist may charge amounts equal to those in the dental schedule of benefits.

You don't have to sign up with the dental PPO. Everyone who belongs to the Grumman/Travelers dental plan gets it automatically. Therefore, you can use a PPO dentist for one procedure, a non-PPO dentist for another, and be covered for both. Your out-of-pocket expenses, however, will be less with a PPO dentist.

All eligible Grummanites were mailed a directory of participating dentists earlier this year. This listing has been revised; Employee Services offices have complete up-to-date lists for your reference.

Tutors Can Fight Illiteracy

If you can read these words, then you are better off than the staggering number of American adults who are functionally illiterate.

These people cannot read bedtime stories to their children, fill out the simplest forms or follow the instructions on a box of cake mix. What you would consider the simplest task is a tremendous burden.

You can help by becoming a literacy volunteer. By teaching these adults how to read you are providing them with an invaluable skill.

If you are interested in becoming a literacy volunteer, you are invited to attend an orientation meeting on September 10 in the auditorium of corporate headquarters on Bethpage, from 5-6:30 p.m. A representative of the Literacy Volunteers of America in Nassau County will conduct the meeting.

Volunteers must attend the tutoring workshops on September 17, 22, 29, and October 1, 6, and 13 in headquarters. The three-hour workshops start at 5 p.m. Once you are a tutor, you will be matched with a pupil close to your home.

For security reasons, only Grummanites are eligible for these workshops. If family members or friends want to volunteer, have them call Anne DuPrey of the Literacy Volunteers of America in Nassau County at (516) 486-2789. There are also chapters of Literacy Volunteers throughout the country. Their telephone numbers are listed in the white pages under Literacy Volunteers.

For an application, please fill out the coupon below. If you have any questions, contact Monique Monaco, Ext. (111) 51426.■

I would like to be a literacy volunteer. Please send me an application.

Name.....

Mail Stop.....**Extension**.....

Mail to Monique Monaco, A33-GHQ

Readership Survey

We don't want to do all the talking. We'd like to know what you think about the things you see in these pages. Your comments, suggestions and complaints are welcomed. Please take a few minutes and give us your opinions.

Article	Great	Good	Poor	Didn't Read
F-8 Radar (Pg. 1)	☐	☐	☐	☐
Quarterly Report (Pg. 2)	☐	☐	☐	☐
A-6F Roll-out (Pg. 3)	☐	☐	☐	☐
New Va. Division (Pg. 4)	☐	☐	☐	☐
Joint STARS (Pg. 5)	☐	☐	☐	☐
F-14D Lab (Pg. 6)	☐	☐	☐	☐
Pakistani Sabre (Pg. 8)	☐	☐	☐	☐
Brownouts (Pg. 9)	☐	☐	☐	☐

Suggestions For Future Articles:.....

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Comments About This Issue:.....

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Name.....

(Required If You Wish A Reply) **Ext.**.....

Division.....

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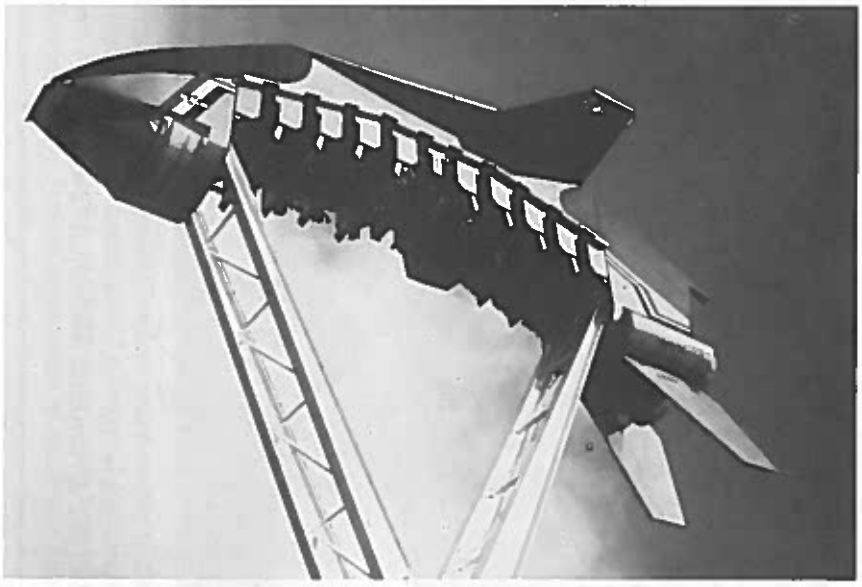
Tomcat Hoops And Thrills



VALENCIA, California — A new ride inspired by the F-14 Tomcat is drawing big crowds at the Six Flags Magic Mountain theme park, about 30 miles north of central Los Angeles.

The new Z-Force ride is based on the experience of flying upside down in an F-14. Grummanites and Navy people from the Pacific Missile Test Center, Point Mugu, California, were technical advisors for Z-Force. Grumman set up a display about naval aviation for its grand opening.

The ride begins with a series of pendulum swings that steadily increase in speed. Passengers then have a 10-second stall, hanging upside down 100 feet above the ground. Z-Force then dives into a pair of 360-degree vertical loops, pulling three Gs — a manuever patterned after the split-S flown by fighter pilots.

Passengers in the 50-seat "cockpit" are secured with padded, locking lap bars, shoulder harnesses and seat belts during the two-and-a-half minute ride.

Unit Values

The Grumman Employee Investment Plan has reported the following unit values as of June 30, 1987 (compared to May 31, 1987 figures):

Equity Fund
4.649 up from 4.440

Fixed Income Fund
5.731 up from 5.650

Guaranteed Income Fund
2.535 up from 2.514

Company Stock Fund
$26.25 up from $25.56

Note: It usually takes several weeks to formulate these values. EIP members can call Ext. (111) 54400 (outside Grumman, call 516-575-4400), for a recorded message which is made as soon as the new unit values are available.

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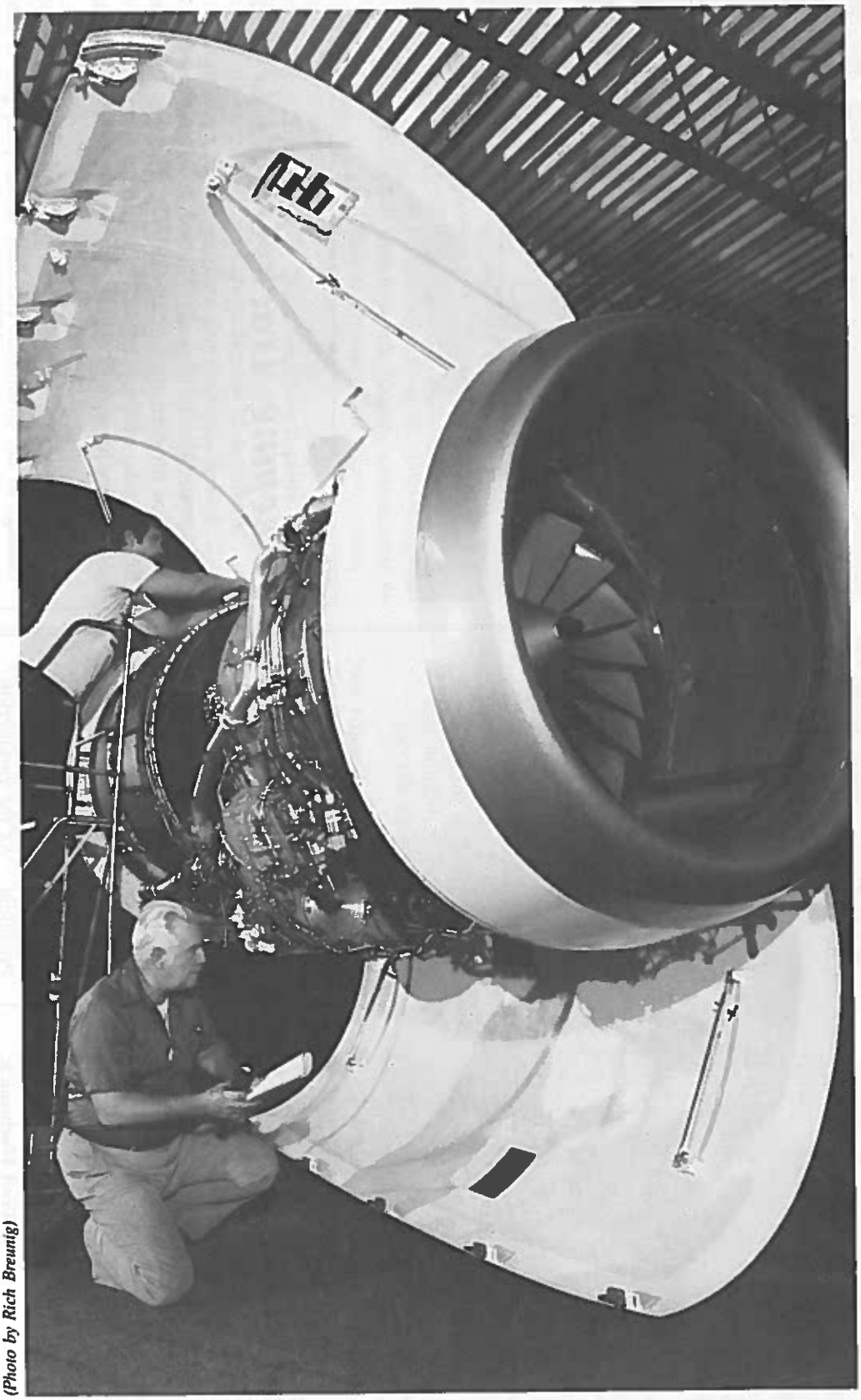
GrummanWorld
August 14, 1987



(Photo by Rich Breunig)

Boosting The Power

Grummanites in the Commercial Development Center in Bohemia, Long Island, are hard at work building a mockup of a new nacelle for an upgraded Rolls-Royce engine. Here, Fred Gauch (kneeling) and Jim Smith are getting the nacelle mockup ready for a program review.

The nacelle is being designed for Fokker by the Aerostructures Division to fit the Rolls-Royce Tay 650 engine, which is a more powerful version of the Tay 620 engine. The Tay 620 powers both the Fokker F-100 and the Gulfstream Aerospace Corp. G-IV executive jet.

After a short production run with the Tay 620, Fokker plans to switch to the upgraded engine. The new engine is but eight-tenths of an inch larger in diameter than the Tay 620. But this little difference means more engineering work and new tooling. The first production delivery of the Tay 650 nacelle is slated for June of next year.

Right now, Grummanites in Stuart are producing the nacelles and thrust reversers for the current production version of the engine for the F-100 and the G-IV.